

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claim 42. (currently amended) A method of partitioning data records in a computer into groups, comprising the steps of:

- (a) defining a function of a distribution of ~~the~~ values of a designated variable associated with the data records, wherein the function comprises a combination of measures, one of the measures being weighted by a weighting factor;
- (b) partitioning the values of ~~a~~ the designated variable into two or more groups, wherein ~~the~~ a value of the function is determined by applying an optimization procedure; and
- (c) assigning ~~each~~ a data record to a group according to the ~~value~~ values of the designated variable.

Claim 43. (previously presented) A method as recited in claim 42 wherein said partitioning comprises partitioning of data records into groups of approximately equal size.

Claim 44. (previously presented) A method as recited in claim 42 further comprising the step of selecting a partition from many computed solutions yielding acceptable performance.

Claim 45. (previously presented) A method as recited in claim 42 wherein said optimization procedure results in an optimal assignment.

Claim 46. (previously presented) A method as recited in claim 42 wherein said function is a combination of entropy and adjacency.

Claim 47. (previously presented) A method as recited in claim 42 wherein said combination is linear.

Claim 48. (currently amended) A method as recited in claim 42 wherein the designated variable ~~may simultaneously~~ comprises ~~comprise~~ a plurality of values.

Claim 49. (previously presented) A method as recited in claim 42 wherein the designated variable corresponds to a designated DNA locus.

Claim 50. (previously presented) A method as recited in claim 42 wherein the data records are applicable to agriculture.

Claim 51. (previously presented) A method as recited in claim 42 wherein the data records are applicable to forensic science.

Claim 52. (previously presented) A method as recited in claim 51 where the forensic science application includes DNA analysis.

Claim 53. (previously presented) A method as recited in claim 42 wherein the data records are applicable to space science.

Claim 54. (previously presented) A method as recited in claim 42 wherein the data records comprise references to textual information.

Claim 55. (previously presented) A method as recited in claim 42 wherein the value of the function is minimized.

Claim 56. (currently amended) A method of partitioning data records in a computer into groups of approximately equal size, comprising the steps of:

- (a) defining a function of a distribution of ~~the~~ values of a designated variable associated with the data records, wherein the function comprises a combination of measures of entropy and adjacency, adjacency being weighted by a weighting factor;

(b) partitioning the values of ~~the~~ designated variable into two or more groups, wherein  
the a value of the function is determined by applying an optimization procedure; and  
(c) assigning ~~each a~~ data record to a group according to the ~~value~~ values of the designated  
variable.

Claim 57. (previously presented) A method as recited in claim 56 further comprising the step  
of selecting a partition from many computed solutions yielding acceptable performance.

Claim 58. (previously presented) A method as recited in claim 56 wherein said optimization  
procedure results in an optimal assignment.

Claim 59. (previously presented) A method as recited in claim 56 wherein said combination  
is linear.

Claim 60. (currently amended) A method as recited in claim 56 wherein the designated  
variable ~~may simultaneously comprises~~ comprise a plurality of values.

Claim 61. (previously presented) A method as recited in claim 56 wherein the data records  
are applicable to forensic science.

Claim 62. (previously presented) A method as recited in claim 56 wherein the designated  
variable corresponds to a designated DNA locus.

Claim 63. (previously presented) A method as recited in claim 56 wherein the data records  
are applicable to agriculture.

Claim 64. (previously presented) A method as recited in claim 56 wherein the data records  
are applicable to space science.

Claim 65. (currently amended) A method of partitioning ~~data for a~~ data records for of a database in a computer, wherein the database is indexed using a tree of nodes, wherein the tree of nodes comprises a root node which is connected to two or more branches originating at the root node, wherein each branch terminates at a node, wherein each node other than the root node ~~may be~~ is a non-terminal node or a leaf node, wherein each non-terminal node is connected to two or more branches originating at the non-terminal node and terminating at a node, wherein the tree-structured index comprises one or more tests associated with each non-terminal node, said method comprising the steps of:

- (a) identifying naturally occurring sets of clusters in the data records of the database;
- (b) defining for each identified set of clusters a test query that evaluates one of a Boolean expression or a decision tree and ~~that assigns~~ each data record within the set of clusters; and
- (c) associating each test query defined in step (b) with a non-terminal node and an associated set of clusters defined in step (a), and associating with each cluster within the set of clusters one branch originating at the non-terminal node, said branch forming part of one or more paths leading to leaf nodes comprising the data records assigned to the cluster by the test query.

Claim 66. (previously presented) A method as recited in claim 65 wherein said partitioning comprises partitioning of data records into groups of approximately equal size.

Claim 67. (currently amended) A method as recited in claim 65 wherein said tests queries are determined by a combination of entropy and adjacency.

Claim 68. (previously presented) A method as recited in claim 67 wherein said combination is linear.

Claim 69. (previously presented) A method as recited in claim 65 wherein the data corresponds to DNA.

Claim 70. (previously presented)      A method as recited in claim 65 wherein the database is applicable to agriculture.

Claim 71. (previously presented)      A method as recited in claim 65 wherein the database is applicable to forensic science.

Claim 72. (previously presented)      A method as recited in claim 65 wherein the database is applicable to space science.

Please add the following new claims:

Claim 73.      (New) A method as recited in claim 65 comprising creating a tree-structured index for a database of a computer.

Claim 74.      (New) A method as recited in claim 65 comprising defining a partition of data records of the database using entropy/adjacency partition assignment.

Claim 75.      (New) A method as recited in claim 65, both data clustering and entropy-adjacency partitioning being used in the same tree of nodes.